Cisco IAD 880 Series Integrated Access Devices

Product Overview

The Cisco® IAD 880 Series Integrated Access Devices are cost-effective fixed configuration customer premises equipment for service providers offering managed voice and data services. The Cisco IAD 880 Series offers cost-effective platforms for providing interconnect solutions for accelerating the migration from time-division multiplexing (TDM) to voice over IP (VoIP). The Cisco IAD 880 Series provides secure concurrent services, including firewall, content filtering, VPNs, and WLANs, at broadband speeds to small offices. The Cisco IAD 880 Series includes fixed-configuration platforms with voice ports, WAN uplinks, embedded encryption acceleration, voice digital-signal-processor (DSP) slots on the motherboard, and intrusion-prevention-system (IPS) and IP Security (IPsec) features while maintaining a desktop form factor for space-saving service provider managed services deployments.

Powered by Cisco IOS® Software, the Cisco IAD 880 Series supports TDM and VoIP, with proven quality-of-service (QoS) tools, multiple call-control protocols (such as Session Initiation Protocol [SIP], Media Gateway Control Protocol [MGCP], and H.323), and diverse VoIP codecs. The choice of Foreign Exchange Station (FXS) or Basic Rate Interface (BRI) voice ports over asymmetric DSL (ADSL) or G.SHDSL furthers the appeal of the Cisco IAD 880 Series to service providers for providing managed services.

Figure 1 shows Cisco IAD 880 Integrated Access Device.

Figure 1. Cisco IAD 880

Table 1 lists the routers that currently make up the Cisco IAD 880 Series.

Table 1. Cisco IAD 880 Series Models

Model	WAN Interface	LAN Interfaces	802.11b/g/n Option	Voice Ports	Integrated ISDN Dial Backup
Cisco IAD 881	10/100-Mbps Fast Ethernet	4-port 10/100-Mbps managed switch (2 ports PoE capable)	Yes	4 FXS or 2 BRI	-
Cisco IAD 886	ADSL2+, Annex B	4-port 10/100-Mbps managed switch (2 ports PoE capable)	Yes	4 FXS or 2 BRI	Yes
Cisco IAD 887	ADSL2+, Annex A	4-port 10/100-Mbps managed switch (2 ports PoE capable)	Yes	4 FXS or 2 BRI	Yes
Cisco IAD 888	G.SHDSL	4-port 10/100-Mbps managed switch (2 ports PoE capable)	Yes	4 FXS or 2 BRI	Yes
Cisco IAD 888E	Ethernet over Copper	4-port 10/100-Mbps managed switch (2 ports PoE capable)	No	4 FXS or 2 BRI	Yes

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Primary Features and Benefits to Service Providers

Cost Effectiveness

The Cisco IAD 880 Series offers the entire gamut of industry-leading features at a very cost-effective price for service providers. With flexible support for a variety of WAN interfaces and line-side voice interfaces, wireless services, as well as integrated security services, the Cisco IAD 880 Series is customized to the unique requirements for the small and medium-sized business. Priced with the small and medium-sized business customer in mind, the feature-rich Cisco IAD 880 Series offers superior value to a service provider interested in taking advantage of the growing managed small and medium-sized business services market.

Transparent Service Migration

The Cisco IAD 880 Series can help service providers transparently migrate end customers from TDM-based voice service to call agent-based packet voice services without the need for a complete equipment upgrade at the end-customer site. The provider can choose SIP, MGCP or H.323 for VoIP protocols, based on the services that need to be delivered.

Flexibility

The Cisco IAD 880 Series offers both TDM and VoIP with rich VoIP signaling protocol support. Combined with the option for call agent- and BRI-based network designs, the Cisco IAD 880 Series offers powerful flexibility in the design of next-generation multiservice networks.

Functional Intelligence

When used with the popular Cisco Configuration Express tool, the autoinstallation technology offers true ready-to-use installation. In addition, the Cisco IAD 880 Series is based on Cisco IOS Software and provides the same IP features that power more than 80 percent of the Internet infrastructure. Cisco IOS Software delivers rich data services, allowing service providers to gain additional data revenue, in addition to proven industry-tested voice features.

Operational Efficiencies

The new Cisco IAD 880 Series can increase operational efficiencies by reducing or eliminating the necessity for complete hardware upgrades, warehousing, complete equipment upgrades, and highly skilled technician involvement. Service providers that deploy these devices with other Cisco equipment and Cisco IOS Software can cost-effectively extend training, administration, and maintenance activities across the entire network.

End-to-End Solution

Because the Cisco IAD 880 Series is compatible with a wide range of industry-leading DSL access multiplexers (DSLAMs) and voice gateways and offers world-class data features of Cisco IOS Software, service providers can deploy a highly efficient and scalable end-to-end multiservice network. The Cisco IAD 880 Series is an integral part of Cisco packet voice solutions.

Primary Benefits to End Users

Robust Voice Quality

The Cisco experience in providing toll-quality packet-voice service helps ensure that the Cisco IAD 880 Series provides the clear, robust voice quality that users have come to expect from telephony services.

Reliability

Cisco products are renowned for their exceptional reliability earned through years of proven industry service. The Cisco IAD 880 Series extends the same reliability standards to managed service environments to provide end users with high levels of dependability.

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Service Flexibility

Today's rapidly changing business environment leads to constant change in network requirements of small and medium-sized businesses. The Cisco IAD 880 Series allows service providers to add or remove service offerings remotely based on end-user needs.

Primary Applications

The Cisco IAD 880 Series is primarily for managed service provider offerings. You can deploy the devices only in one the following deployment scenarios:

- Private-branch-exchange (PBX) or IP PBX interconnects (Figure 2)
- Managed SIP Trunking for IP PBX interconnects (Figure 3)

Figure 2. PBX or IP PBX Interconnects: Cisco IAD 880 Series Is Targeted at Providing BRI Interconnects to PBXs and IP PBXs

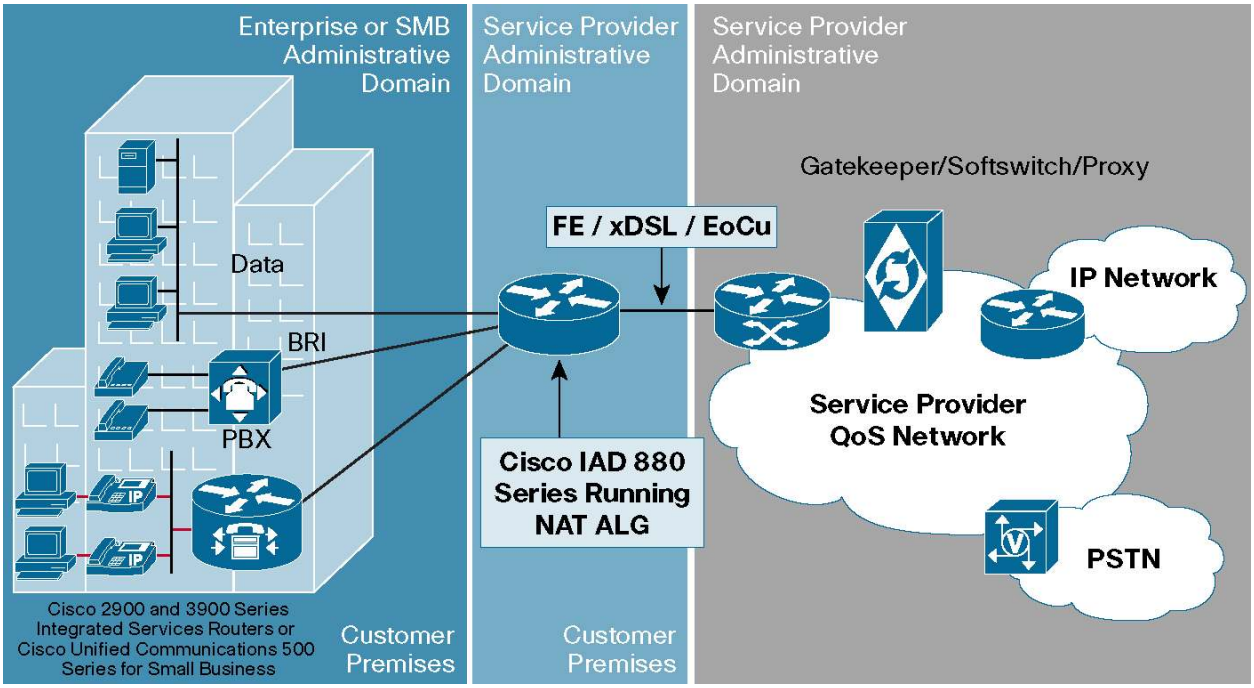

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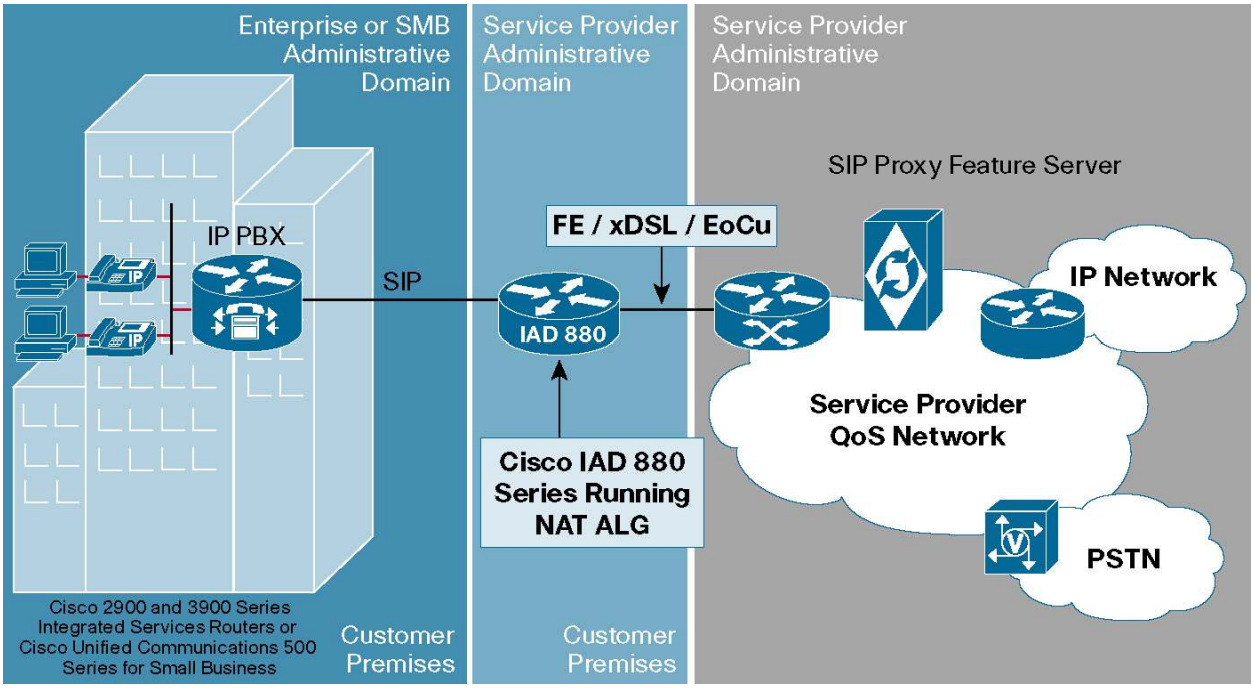
Figure 3. Managed SIP Trunking for IP PBX Interconnects: Cisco IAD 880 Series Is Targeted at Providing Network Address Translation ALG (Application Layer Gateway) Functions for the Managed SIP Trunking IP PBX Interconnect


Enterprise or SMB Administrative Domain
Service Provider Administrative Domain
Service Provider Administrative Domain
SIP Proxy Feature Server
IP PBX
SIP
FE / xDSL / EoCu
IAD 880
IP Network
Service Provider QoS Network
Cisco IAD 880 Series Running NAT ALG
PSTN
Cisco 2900 and 3900 Series Integrated Services Routers or Cisco Unified Communications 500 Series for Small Business
Customer Premises
Customer Premises

Features and Benefits

The Cisco IAD 880 Series architecture is designed specifically to meet the expanding requirements of service providers providing managed services to commercial offices and small and medium-sized businesses for today's and future applications. The Cisco IAD 880 Series offers DSL connectivity options combined with leading-edge availability and reliability features. In addition, Cisco IOS Software supports a complete suite of transport protocols, QoS tools, and advanced security and voice applications for wired and wireless deployments. Table 2 gives features and benefits of the Cisco IAD 880 Series.

Table 2. Features and Benefits

Feature	Benefit
Increased performance to run concurrent services	The performance in a Cisco IAD 880 Series router allows customers to take advantage of broadband network speeds while running secure, concurrent data, voice, and video services.
Enhanced security*	• Integrated Stateful Inspection Firewall for network perimeter security • High-speed IPSec 3DES and AES encryption for data privacy over the Internet • Intrusion Prevention to enforce security policy in a larger enterprise or service provider network • Content Filtering offers category-based URL classification and blocking, thus providing increased productivity and better use of company resources
4-Port 10/100-Mbps managed switch	• Allows multiple devices to be connected in a small office, with the ability to designate a port as network edge • Optional external Power over Ethernet (PoE) adapter for powering IP phones, to avoid individual power supplies or power injectors • VLANs allow for secure segmentation of network resources
AUX/CON port	Provides direct connection to a console or external modem for management or backup.
Optional 802.11b/g/n WLANs	• Broadband router with secure integrated AP access point in a single device (not available on IAD 888E models) • 802.11n features for increased throughput and range including MIMO (multiple input multiple output) antennas for optimizing coverage in a small office • Supports both autonomous and Unified modes
Real-time clock	Built-in real-time clock maintains an accurate date and time for applications that require an accurate time stamp such as logging and digital certificates.

* Depending on Cisco IOS Software feature set selected below in Tables 3 and 6.

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Note: The Cisco IAD 880 Series does not support Cisco Unified Communications Manager integration, Cisco Unified Communications Manager Express, or Cisco Unified Survivable Remote Site Telephony (SRST).

Product Specifications

As service providers strive to lower the cost of running their network and increase the productivity of their end customers with network applications, more intelligent small office solutions are required of service providers. The Cisco IAD 880 Series offers these solutions by providing enhanced performance and increased modular density to support multiple services at wire speed. The Cisco IAD 880 Series is designed to consolidate the functions of many separate devices into a single, compact package that you can manage remotely. The Cisco IAD 880 Series offers powerful flexibility and an adaptable infrastructure to meet both today's and tomorrow's business requirements for maximum investment protection.

Tables 3 through 6 describe features of the Cisco IAD 880 Series in various configurations.

Product Specifications

Table 3. Cisco IOS Software Features on Cisco IAD 880 Series Routers: Advanced Security Feature Set (Default)

Feature	Description
IP and IP Services Features	• Routing Information Protocol (RIPv1 and RIPv2) • Generic routing encapsulation (GRE)/MGRE • Cisco Express Forwarding • 802.1d Spanning Tree Protocol • Layer 2 Tunneling Protocol (L2TP) • Layer 2 Tunneling Protocol Version 3 (L2TPv3) • NAT • Dynamic Host Configuration Protocol (DHCP) server/relay/client • Dynamic Domain Name System (DNS) • DNS Proxy • DNS Spoofing • Access control lists (ACLs)
DSL and ATM Features (DSL Models Only)	• ATM Variable Bit Rate/real-time (VBR-rt) • ATM Unspecified Bit Rate (UBR), Constant Bit Rate (CBR), and Variable Bit Rate/non-real-time (VBR-nrt) • ATM Operation, Administration, and Maintenance (OAM) Support for F5 Continuity Check; segment and end-to-end loopback; and Interim Local Management Interface (ILMI) support • Dying Gasp support • TX ring adjustment • VC bundling • Per-VC queuing • Per-VC traffic shaping • 20 ATM virtual circuits • RFC 1483/2684 • Point-to-Point Protocol over ATM (PPPoA) • PPP over Ethernet (PPPoE)
Switch Features	• Auto MDI-MDX • 8 802.1Q VLANs • MAC Filtering • 2 port 802.af and Cisco compliant PoE • Switch Port Analyzer (SPAN) • Storm Control • Smartports

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Feature	Description
Security Features	Secure Connectivity: • SSL VPN for secure remote access • Hardware-accelerated DES, 3DES, AES128, AES192, AES256 • Public Key Infrastructure (PKI) support • 20 IPSec Tunnels • Cisco Easy VPN Client and Server • NAT transparency Zone-Based Policy Firewall • VRF-aware stateful Inspection Routing Firewall • Stateful Inspection Transparent Firewall • Advanced Application Inspection and Control Secure HTTP (HTTPS), FTP, and Telnet Authentication Proxy
QoS Features	• Weighted Fair Queuing (WFQ) • Class-Based WFQ (CBWFQ) • Policy-based routing (PBR) ◦ Class-Based QoS MIB ◦ CoS to DSCP mapping
Management Features	• Cisco Configuration Professional • Cisco Configuration Express • Cisco Configuration Engine support • Cisco AutoInstall • IP SLA • Embedded Event Manager (EEM) • CiscoWorks • Cisco Security Manager • Telnet, Simple Network Management Protocol (SNMPv3), SSH, CLI and HTTP management • RADIUS and TACACS+ • Out-of-band management with ISDN S/T port or external
High-Availability Features	• Virtual Router Redundancy Protocol (VRRP) (RFC 2338) • Hot Standby Router Protocol (HSRP) • MHSRP • Dial backup with external modem through virtual auxiliary port • Dial backup with ISDN S/T port (DSL models only)

Table 4. Cisco IOS Software Features on Cisco IAD 880 Series Routers: Voice Features

Feature	Description and Benefits
Voice Gateway	Provides gateway to PSTN for traditional PBXs, phones, fax machines, and key communication systems connected to a voice, data, and video infrastructure.
Toll Bypass	• Reduces or eliminates toll charges assessed by long-distance and local carriers by transporting voice and fax traffic across the enterprise intranet, LAN, metropolitan-area network (MAN), or WAN • Works with existing phones, faxes, PBXs, and key systems • Interoperates end-to-end with Cisco IP phones, analog phones, fax machine connections, and PBX or PABX connections to and from other Cisco voice-enabled products
Voice over Packet Transport	• Voice/fax over IP-VoIP traffic at Layer 3 can travel over any Layer 1 or Layer 2 media, including Ethernet and DSL • Compressed Real-Time Protocol (cRTP) offers RTP header compression and packet fragmentation techniques that allow toll-quality voice and fax transmissions over any WAN connection
Call Control Signaling	Supports H.323 V1/V2/V3/V4, MGCP 0.1/1.0, and SIP call control protocols.
International Telecommunications Union (ITU) Standard Voice Codecs	G.711, G.729, G.729a/b, G.723.1, G.726 and G.728. These are standards-based compression technologies allowing transmission of voice across IP, Frame Relay, and ATM. The G.711 standard employs 64-kbps PCM modulation using either u-law or A-law. Other codecs employ lower bit rates.
Telephony Interface Signaling Support	Supports the following signaling protocols: • FXS loop-start and ground-start signaling • Inbound signaling (such as dual-tone multifrequency [DTMF], multifrequency support) • BRI QSIG

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Feature	Description and Benefits
Voice features	• Echo Cancellation: Cancels echo on tail circuits up to 32 msec (configurable tail length) • Silence suppression, voice activity detection (VAD): Bandwidth is used only when someone is speaking. During silent periods of a phone call, bandwidth is available for data traffic • Comfort Noise Generation: This feature reassures the phone user that the connection is being maintained, even when no voice packets are being transmitted • Private Line Automatic Ring-Down (PLAR): Provides a direct connection to another digital or analog voice port by lifting a telephone handset on one end • Caller ID Support: Per-port configurable caller ID (with per call un-blocking) over analog FXS • Dial Plan Mapping: Simplifies configuration and management through automatic mapping of dialed phone numbers to IP addresses
Voice Port Interfaces	Support FXS and BRI (S/T, NT/T).
Voice Port-Specific features	• FXS: Provides battery polarity reversal detection and initiation for disconnect supervision and far-end answer supervision • ISDN BRI Network Side: The BRI port provides the ability to connect a PBX or PABX configured as user side directly to the router • LED indicators for voice-processing resources and port status
Fax and Modem	• Fax and Modem Pass-Through: Allows fax and modem traffic to pass through a voice port • Fax Relay: Provides a more robust protocol for fax transmission over packet networks. Also supports the T.37 and T.38 fax protocols
High-Performance Flexible Digital Signal Processor (DSP) Architecture	• Flexible DSP Architecture: There is no need to specify codec complexity at configuration. An appropriate codec is dynamically selected when a call is established, while allocating DSP resources optimally • Feature Upgrades: The DSP architecture allows for addition of new features through simple code updates

Table 5. Cisco IOS Software Features on Cisco IAD 880 Series Routers: WLAN Features (Wireless option not available on IAD 888E)

Feature	Description
WLAN Hardware	• 802.11g/n • Automatic rate selection for 802.11g/n • Captive omnidirectional 2dBi gain dipole antennas • 2x3 MIMO radio operation • Wi-Fi 802.11n Draft v2.0 certified
WLAN Software Features	• Autonomous or Unified access point • WCS support for monitoring of autonomous mode access points • Maximize throughput or maximize range option • Software-configurable transmit power • Radio roles include access point, root bridge, non-root bridge, and workgroup bridge • Wireless Multi Media Certification (WMM) ◦ TSPEC Call Admission Control to ensure voice quality is maintained ◦ Unscheduled Automatic Power Save Delivery (UPSD) to reduce latency
WLAN Security Features	• 802.11i • Wi-Fi Protected Access (WPA) and AES (WPA2) • EAP Authentication: Cisco LEAP, PEAP, EAP-TLS, EAP-FAST, EAP-SIM, EAP-MD5, EAP-TTLS • Static and dynamic Wired Equivalent Privacy (WEP) • Temporal Key Integrity Protocol/Simple Security Network (TKIP)/SSN) encryption • MAC authentication/filter • User database for survivable local authentication using LEAP and EAP-FAST • Configurable limit to the number of wireless clients • Configurable RADIUS accounting for wireless clients • PSK (Pre Shared Keys) (WPA-SOHO)
Certifications	
SSIDs	16
Wireless VLANs	8
Encrypted Wireless VLANs	8
MBSSIDs	16

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Cisco IOS Software Advanced IP Services Feature Set (Optional Software Upgrade)

The Advanced IP Services software image has all the features of the Advanced Security software image, with the addition of the features in Table 6.

Table 6. Cisco IOS Software Features on Cisco IAD 880 Series: Advanced IP Services Feature Set (Optional Software Upgrade)

Feature	Description
IP and IP Services Features	• Open Shortest Path First (OSPF) • Border Gateway Protocol (BGP) • Enhanced Interior Gateway Routing Protocol (EIGRP) • VRF Lite • NHRP • BFD • WCCP
Switch Features	• Dynamic and static port security • Secure MAC address • IGMPv3 snooping • 802.1x
Security Features	Secure Connectivity • DMVPN • Tunnel-less Group Encrypted Transport VPN • IPSec stateful failover • VRF-aware IPSec • SSL VPN • IPSec over IPv6 • Adaptive Control Technology • SIP Application Layer Gateway Cisco IOS Firewall • Firewall stateful failover • VRF-aware Firewall Content Filtering • Subscription based Content Filtering • Websense and Smartfilter using WCCP • Cisco IOS Software black and white lists Integrated Threat Control • Intrusion prevention system (IPS) • Control Plane Policing • Flexible Packet Matching • Network Foundation Protection
QoS Features	• Low-Latency Queuing (LLQ) • Class-Based Traffic Shaping (CBTS) • Class-Based Traffic Policing (CBTP) • Class-Based Weighted Random Early Detection (CBWRED) • Network-Based Application Recognition (NBAR) • Link Fragmentation and Interleaving (LFI) • Resource Reservation Protocol (RSVP) • RTP Header compression (cRTP) • Differentiated Services (DiffServ) • QoS Preclassify and Pre-fragmentation • HQoS
Metro Ethernet Features	• Ethernet Operations, Administration, and Maintenance (Ethernet OAM) • Ethernet Local Management Interface (Ethernet LMI) • Hierarchical QoS (HQoS)

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Feature	Description
IPv6 Features	• IPv6 addressing architecture • IPv6 name resolution • IPv6 statistics • IPv6 translation-transport packets between IPv6-only and IPv4-only endpoints (NAT-PT) • ICMPv6 • IPv6 DHCP
IPv6 Multicast Features	• Protocol Independent Multicast (PIM) Sparse Mode • PIM Sparse-Dense Mode • Auto Route Processing (Auto-RP)
Unified WLAN Management	• Unified access point features: ◦ Supported by wireless LAN controller and WCS ◦ Configurable local or central switching for HREAP mode ◦ Radio management via WCS • Seamless roaming with Mobility Groups
High-Availability Features	Multigroup HSRP (MHSRP)
IP and IP Services Features	• Open Shortest Path First (OSPF) • Border Gateway Protocol (BGP) • Enhanced Interior Gateway Routing Protocol (EIGRP) • VRF Lite • NHRP • BFD • WCCP
Switch Features	• Dynamic and static port security • Secure MAC address • IGMPv3 snooping • 802.1x
Security Features	Secure Connectivity • Dynamic Multipoint VPN (DMVPN) • Tunnel-less Group Encrypted Transport VPN • IPSec stateful failover • VRF-aware IPSec • SSL VPN • IPSec over IPv6 Cisco IOS Firewall • Firewall stateful failover • VRF-aware Firewall Content Filtering • Subscription based Content Filtering • Websense and Smartfilter using WCCP • IOS black and white lists Threat Defense • Intrusion prevention system (IPS) • Control Plane Policing • Flexible Packet Matching • Network Foundation Protection • Network Admission Control (NAC)
QoS Features	• Class-Based Weighted Random Early Detection (CBWRED) • Network-Based Application Recognition (NBAR) • Link Fragmentation and Interleaving (LFI) • Resource Reservation Protocol (RSVP) • RTP Header compression (cRTP) • Differentiated Services (DiffServ) • QoS Preclassify and Prefragmentation • HQoS
Multicast Features	• Protocol Independent Multicast (PIM) Sparse Mode • PIM Sparse-Dense Mode • Auto Route Processing (Auto-RP)

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Feature	Description
High-Availability Features	• Multigroup HSRP (MHSRP)

System Specifications

Table 7 lists the system specifications for the Cisco IAD 880 Series.

Table 7. System Specifications

Feature	Specification
Default DRAM	256 MB on Cisco IAD 880 Series Models
Maximum DRAM	768 MB
Default Flash Memory	256 MB on Cisco IAD 880 Series Models
WAN	• Cisco IAD 881: Fast Ethernet • Cisco IAD 886: ADSL2+, Annex B • Cisco IAD 887: ADSL2+, Annex A • Cisco IAD 888: G.SHDSL (2- and 4-wire support) with ISDN backup • Cisco IAD 888E: Ethernet over Copper
Digital Signal Processor	PVDM2-16
LAN Switch	Managed 4-port 10/100BASE-T with autosensing MDI/MDX (Media Device In/Media Device Cross Over) for autocrossover
802.11b/g/n WLANs	Optional on all models
Console Port	RJ-45
1 USB 1.1 Port for Advanced Security Features Such as Security Tokens, USB Flash, or USB printers	• 1 USB 1.1 port on Cisco IAD881 only • USB 1.1 port cannot be used for connecting external devices other than those specified for the Cisco IAD881
ISDN Basic Rate Interface (BRI) S/T	Available on: • Cisco IAD 888 for out-of-band management and dial backup or primary
LEDs	PPP, VPN, G.SHDSL, WLAN, LAN
External Power Supply	Universal 100 to 240 VAC
Inline PoE	Optional internal adapter for inline PoE on 2 switch ports for IP phones or external wireless access points, 802.3af compliant and Cisco PoE compliant
Software	
Initial Software Release	12.4(15)XZ1
Default Cisco IOS Software	Cisco IAD 880 Series Universal image with Advance Security Feature license
G.SHDSL Specifications	• Conexant Chipset • Supports ITU G.991.2 bis standard for G.SHDSL • 2-Wire and 4-Wire modes supported • Annex A and Annex B are supported starting with Cisco IOS Software Release 12.4(15)XZ1 • Support for wetting current (Section A.5.3.3 of G.991.2) • Support for dying gasp; uses power status bit (Section 7.1.2.5.3 of G.991.2) for signaling • Symmetrical WAN speeds of 2.304 Mbps per pair

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Feature	Specification
DSL Specifications	
ADSL Specifications	• ST-Microelectronics 20190 Chipset • Supports ADSL over basic telephone service with Annex A and Annex B ITU G. 992.1 (ADSL), G.992.3 (ADSL2), and G.992.5 (ADSL2+) • G.994.1 ITU G.hs • Supports for Reach-extended ADSL2 (G.922.3) Annex L for increased performance on loop lengths greater than 16,000 feet from Central Office • Complies with T1.413 ANSI ADSL DMT issue 2 • DSL Forum TR-067 • The chipset does not provide interoperability with carrierless amplitude modulation/phase modulation (CAP)-based ADSL lines • ADSL (G.992.1) provides downstream data rates of up to 8 Mbps and upstream data rates of up to 0.8 Mbps • ADSL2 provides higher downstream rates of up to 12 Mbps and upstream data rates of up to 1 Mbps • The ADSL2+ standard (G.992.5) increases the downstream data rates of up to 24 Mbps and upstream data rates of up to 1.5 Mbps
ADSL over ISDN DSLAM Interoperability for Cisco 886	
DSLAM	ADSL2/2+ over ISDN Line Card Chipset
Siemens HIX 5300	Infineon
ECI 480	Infineon
Alcatel ASAM 7300	Globespan
ADSL over POTS DSLAM Interoperability for Cisco 887 and 887M	
DSLAM	ADSL2/2+ over POTS Line Card Chipset
Alcatel ASAM 7300	Broadcom (Annex A)
ECI 480	Infineon (Annex A)
Ericsson	Broadcom (Annex A)
Huawei 5600	Globespan (Annex A)
Lucent Stinger	Globespan (Annex A)
FXS Voice Port Specifications	
DID Signaling Modes	Immediate, Delay-Dial and Wink Start
DID Loop Resistance	Up to 1800 ohms (including terminal equipment)
Disconnect Supervision	Power Denial (calling-party control, far-end disconnect)
Caller ID	On-hook Transmission of Frequency-Shift-Keying Data
FXS Loop Resistance	Up to 600 ohms (including phone or terminal equipment)
On-Hook Voltage	-44V
Off-Hook Loop Current	25mA (max)
Ring Tone	The Ringing Tone is configurable for different country requirements
Ringing Voltage	54Vrms into 5REN at zero loop length (balanced)
Ringing Frequencies	20Hz, 25Hz, 30Hz and 50Hz
REN Loading	5 REN/port, 10 REN/Steelers (max)
Address Signaling Formats	In-band DTMF or Pulse Dialing (8-12pps)
FXS Signaling Formats	Loop-start and Ground-start

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Feature	Specification
Wireless Specifications	
Data Rates Supported	1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, and 54 Mbps
Receive Sensitivity	802.11b • -94dBm @ 1 Mbps • -93dBm @ 2 Mbps • -92dBm @ 5.5 Mbps • -90dBm @ 11 Mbps 802.11g • -92dBm @ 6 Mbps • -90dBm @ 9 Mbps • -89dBm @ 12 Mbps • -87dBm @ 18 Mbps • -85dBm @ 24 Mbps • -81dBm @ 36 Mbps • -76dBm @ 48 Mbps • -73dBm @ 54 Mbps
Maximum Transmit Power	**Note:** Maximum power setting subject to changes by channel and by region depending on regulations • 802.11b Average: 80mW (19dBm), Peak: (FCC) 245mW (23.9dBm) • 802.11g Average: 50mW (17dBm)
Immunity	• IEC 61000-4-2:1995 Immunity to Electrostatic Discharges • IEC 61000-4-3:1995 Immunity to Radio Frequency Electromagnetic Fields • IEC 61000-4-4:1995 Immunity to Electrical Fast Transients • IEC 61000-4-5:1995 Immunity to Power Line Transients (Surges) • IEC 61000-4-6:1996 Immunity to Radio Frequency Induced Conducted Disturbances • IEC 6100-4-8: 1003 Immunity to Power-Frequency Magnetic Fields (N/A for most of Cisco equipment) • IEC 61000-4-11:1995 Immunity to Voltage Dips, Voltage Variations, and Short Voltage Interruptions
Environmental Specifications	
Physical Dimensions and Weight	Product dimensions: • W x D x H = 12.8” x 9.8” x 1.9” (325mm x 249mm x 48mm) (nonwireless models) • W x D x H = 12.8” x 10.4” x 1.9” (325mm x 264mm x 48mm) (wireless models with fixed antennas, excludes antennae) • Weight: 2.10 lb (0.954 kg) maximum
Power	Product power specifications: • AC input voltage: 100 to 240 VAC • Frequency: 50 to 60 Hz • Maximum output power: 60W • Output voltages: 12V DC Optional internal PoE with external adapter: • Maximum output power: 80W • Output voltage: external 48V DC
Approvals and Compliance	• UL 1950/CSA 950-95, Third Edition • IEC 950: Second Edition with Amendments 1, 2, 3, and 4 • IEC/EN 60950-1, 1st edition • CS-03, Canadian Telecom Requirements • FCC Part 68 U.S. Telecom Requirements • AS/NZS 3260:1996 with Amendments 1, 2, 3, and 4 • ETSI 300-047 • TS 001 with Amendment 1 • EMI • VCCI Class II • IEC 1000-3-2 • UNI 3.1/4.0 PVC • ITU G.991.2 G.SHDSL
Certifications	

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Feature	Specification
Environmental Operating Range	• Nonoperating temperature: -4 to 149℉ (-20 to 65℃) • Nonoperating humidity: 5 to 95 percent relative humidity (noncondensing) • Nonoperating altitude: 0 to 15,000 ft (0 to 4570m) • Operating temperature: 32 to 104℉ (0 to 40℃) • Operating humidity: 10 to 85%, relative humidity (noncondensing) • Operating altitude: 0 to 10,000 ft (0 to 3000m)

Ordering Information

To place an order, visit the Cisco Ordering Home Page. Table 8 gives ordering information, and Table 9 gives software ordering information.

Table 8. Hardware Ordering Information

Part Number	Product Name
Ethernet with FXS	
IAD881F-K9	Cisco IAD881 Ethernet FXS Security Router
IAD881FW-GN-A-K9	Cisco IAD881 Ethernet FXS Security Router 802.11n FCC Compliant
IAD881FW-GN-E-K9	Cisco IAD881 Ethernet FXS Security Router 802.11n ETSI Compliant
Ethernet with BRI	
IAD881B-K9	Cisco IAD881 Ethernet BRI Security Router
IAD881BW-GN-A-K9	Cisco IAD881 Ethernet BRI Security Router 802.11n FCC Compliant
IAD881BW-GN-E-K9	Cisco IAD881 Ethernet BRI Security Router 802.11n ETSI Compliant
ADSL2+ Annex B with FXS	
IAD886F-K9	Cisco IAD886 with Annex B and 4FXS
IAD886FW-GN-E-K9	Cisco IAD886 with Annex B and 4FXS and 802.11n Wireless(ETSI)
ADSL2+ Annex B with BRI	
IAD886B-K9	Cisco IAD886 with Annex B and 2BRI
IAD886BW-GN-E-K9	Cisco IAD886 with Annex B and 2BRI and 802.11n Wireless(ETSI)
ADSL2+ Annex A with FXS	
IAD887F-K9	Cisco IAD887 with Annex A and 4FXS
IAD887FW-GN-A-K9	Cisco IAD887 with Annex A and 4FXS and 802.11n Wireless(FCC)
IAD887FW-GN-E-K9	Cisco IAD887 with Annex A and 4FXS and 802.11n Wireless(ETSI)
ADSL2+ Annex A with BRI	
IAD887B-K9	Cisco IAD887 with Annex A and 2BRI
IAD887BW-GN-A-K9	Cisco IAD887 with Annex A and 2BRI and 802.11n Wireless(FCC)
IAD887BW-GN-E-K9	Cisco IAD887 with Annex A and 2BRI and 802.11n Wireless(ETSI)
G.SHDSL with FXS	
IAD888F-K9	Cisco IAD888 G.SHDSL FXS Security Router with ISDN Backup
IAD888FW-GN-A-K9	Cisco IAD888 G.SHDSL FXS Security ISDN Backup 802.11n FCC Compliant
IAD888FW-GN-E-K9	Cisco IAD888 G.SHDSL FXS Security ISDN Backup 802.11n ETSI Compliant
G.SHDSL with BRI	
IAD888B-K9	Cisco IAD888 G.SHDSL BRI Security Router with ISDN Backup
IAD888BW-GN-A-K9	Cisco IAD888 G.SHDSL BRI Security ISDN Backup 802.11n FCC Compliant
IAD888BW-GN-E-K9	Cisco IAD888 G.SHDSL BRI Security ISDN Backup 802.11n ETSI Compliant
Ethernet over Copper	
IAD888EB-K9	Cisco IAD888 EFM-based BRI Security Router with ISDN backup
IAD888EF-K9	Cisco IAD888 EFM-based FXS Security Router with ISDN backup

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Table 9. Software Ordering Information

Part Number	Product Name
FL-WEBVPN-10-K9	Feature License IOS SSL VPN up to 10 incremental users

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For more information about Cisco Services, refer to Cisco Technical Support Services or Cisco Advanced Services.

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